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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/601,044	06/20/2003	Rex H. Allen	BOEI-1-1075	8218
25315	7590	09/06/2005		
BLACK LOWE & GRAHAM, PLLC 701 FIFTH AVENUE SUITE 4800 SEATTLE, WA 98104			EXAMINER ROSENBERGER, FREDERICK F	
			ART UNIT 2878	PAPER NUMBER

DATE MAILED: 09/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/601,044

Applicant(s)

ALLEN ET AL.

Examiner

Frederick F. Rosenberger

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2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 December 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>12/8/03 & 12/10/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to because, in Figures 2-5, the differences in the plotted curves are difficult to discern due to the chosen scale for the axes. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities: On page 8, line 11, "decreases" should be --increases--. On page 8, line 13, "decreases" should be --increases--. On page 12, line 6, "ate" should be --at-.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-5, 9-13, 17, 18, 20-25, and 29 are rejected under 35 U.S.C. 102(b) as being anticipated by Carduner et al. (US Patent # 5,091,647).

With regards to claims 1-5, Carduner et al. disclose a non-destructive method for measuring a coating on a metallic substrate (column 3, lines 52-53), the method comprising:

Determining at a first wavelength, for example 2028nm (column 6, line 19), a first total amount of IR energy reflected from a metallic substrate that is coated;

Determining at a second wavelength, for example 2076nm (column 6, line 18), a second total amount of IR energy reflected from the metallic substrate;

Determining a difference between the first and second total amounts of IR energy (column 6, lines 26-28);

And determining the coating thickness based on the difference between the first and second total amounts of energy (column 8, lines 2-20), wherein the step of determining the coating thickness is analogous to determining that a predetermined amount of coating exists when the difference is predetermined value (column 10, lines 22-25).

Carduner et al. mention that the substrate may be reflective or nonreflective (column 3, lines 52-54), and thus specular or nonspecular respectively. Carduner et al. also account for scattered radiation by the substrate due to nonspecular reflections (column 7, lines 13-20).

With regards to claims 9-13, 17, 18, 21-25, and 29 Carduner et al. further disclose a method comprising:

Transmitting an IR beam **10'** (Figure 7) into a coating on a metallic substrate **12'**;

Collecting the total hemispherical reflectance of IR energy (column 9, lines 45-46) with a hemispherical collector **60**;

Integrating the collected total reflectance via the hemispherical collector **60**;

Filtering of the transmitted IR beam from the source at a first wavelength and a second wavelength that is longer than the first wavelength (column 9, lines 14-19);

Detecting a first amount of IR energy at a 1st wavelength and a second amount of IR energy at a 2nd wavelength (column 9, lines 55-61);

Determining a difference between the first and second total amounts of IR energy (column 6, lines 26-28);

And determining the coating thickness based on the difference between the first and second total amounts of energy (column 8, lines 2-20), wherein the step of determining the coating thickness is analogous to determining that a predetermined amount of coating exists when the difference is predetermined value.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 6-8, 14-16, 19, 26-28, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carduner et al., as applied to claims 1, 5, 13, 17, and 21 above.

With regards to claim 6, 14, and 26, Carduner et al. disclose the claimed invention except for the ranges for the first and second wavelengths. It would have been obvious to one of ordinary skill in the art at the time the invention was made to

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choose the first wavelength to be between 7 and 8 μ m and the second wavelength to be between 10.5 and 12 μ m, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

With regards to claims 7, 8, 15, 16, 27, and 28, Carduner et al. disclose the claimed invention except for the coating and substrate materials. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use phosphoric acid anodize for the coating and aluminum for the substrate, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of design choice. In re Leshin, 125 USPQ 416.

With regards to claims 19 and 30, Carduner et al. disclose the claimed invention except for filtering the reflected beam from the coating. Instead Carduner et al. filter the incident transmitted beam to obtain the appropriate wavelength ranges. However, it is well known in the field of optical detection, and specifically wavelength selective optical detection, that applying the appropriate filters to the source-side of an interrogating beam (in this case, the transmitted source beam) or to the detector-side of an interrogating beam (in this case, the collected reflectance) so as to be able to detect the desired wavelength ranges is functionally equivalent and amounts to an obvious matter of design choice.

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7. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sharkins et al.

With regards to claims 1, 3-5, and 8, Sharkins et al. disclose a non-destructive method for measuring a coating on a metallic substrate (abstract), the method comprising:

Determining at a first wavelength a first total amount of IR energy reflected from an aluminum specular substrate (column 1, lines 28-35 and column 7, lines 46-48) that is coated;

Determining at a second wavelength a second total amount of IR energy reflected from the metallic substrate;

Determining a difference between the first and second total amounts of IR energy, wherein the first and second wavelengths are different and thus the arbitrarily designated second wavelength would be larger than the arbitrarily designated first wavelength (column 10, line 61 through column 11, line 7);

And determining the coating thickness based on the difference between the first and second total amounts of energy (column 11, lines 13-17).

Sharkins et al. do not specifically disclose determining that a predetermined amount of coating is on the metal substrate when the difference is a predetermined amount. However, Sharkins et al. do correlate the difference measurement with a thickness measurement. While not mentioned, it would have been obvious to one of ordinary skill in the art that a calibration step would have been performed to correlate the observed difference values with coating thickness values. Thus, a predetermined

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amount of coating is determined to exist when the difference is a predetermined value by using the calibration standard.

With regards to claim 6, Sharkins et al. disclose the claimed invention except for the ranges for the first and second wavelengths. It would have been obvious to one of ordinary skill in the art at the time the invention was made to choose the first wavelength to be between 7 and 8 μ m and the second wavelength to be between 10.5 and 12 μ m, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

With regards to claim 7, Sharkins et al. disclose the claimed invention except for the coating material. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use phosphoric acid anodize for the coating, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of design choice. In re Leshin, 125 USPQ 416.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Cielo et al. (US Patent # 4,748,329) disclose a method for IR thickness monitoring of a film on a metal specular substrate. Hofling et al. disclose the use of an integrating hemisphere in the determination of a coating thickness on a metal substrate.


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9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Frederick F. Rosenberger whose telephone number is 571-272-6107. The examiner can normally be reached on Monday-Friday 7:30 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on 571-272-2444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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